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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/761,842 | 01/21/2004 | Wang Yueh | ITL.1058US (P17800) | 3057 |

21906 7590 10/05/2004

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HOUSTON, TX 77024

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| EXAMINER |
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LEE, SIN J

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| ART UNIT | PAPER NUMBER |
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1752

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/761,842 | | YUEH ET AL. | |
| | Examiner | | Art Unit | |
| | Sin J. Lee | | 1752 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 15 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim interpretations

1. The photoacid generator of Claim 1 is interpreted by the Examiner as a photoacid generator having a first ring, which includes iodine or sulfur in its ring structure, and an aromatic ring.
2. Claim 2 is interpreted by the Examiner as claiming the method of claim 1 wherein said first ring is sigma-bonded.
3. Claim 3 is interpreted by the Examiner as claiming the method of claim 1 wherein said aromatic ring is a phenyl group.
4. Claim 4 is interpreted by the Examiner as claiming the method of claim 1 wherein said aromatic ring is a naphthyl ring.
5. Claim 5 is interpreted by the Examiner as claiming the method of claim 1 wherein said first ring is directly to said aromatic ring and said aromatic ring is a naphthyl ring.
6. The photoacid generator of Claim 6 is interpreted by the Examiner as a photoacid generator including a first ring, which includes iodine or sulfur in its ring structure, and an aromatic ring bonded to said first ring.
7. Claim 7 is interpreted by the Examiner as claiming the photoresist of claim 6 wherein the photoacid generator includes two aromatic rings and those two aromatic rings is coupled to said first ring.
8. Claim 10 is interpreted by the Examiner as claiming the photoresist of claim 6 wherein said first ring is directly bonded to said aromatic ring and said aromatic ring is a naphthyl ring.

9. The first ring of Claim 11 is interpreted by the Examiner to include two atoms, which are selected from the group consisting of iodine and sulfur, in its ring structure.
10. Claim 13 is interpreted by the Examiner as claiming the photoresist of claim 11 wherein the photoacid generator includes two aromatic rings and those two aromatic rings are bonded to said first ring.

Claim Objections

11. Claim 15 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 9. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 16, applicants recite "caged alkyl". What do they mean by "caged alkyl"? Do they mean "cycloalkyl"? Appropriate correction or clarification is required.

For the purpose of examining the claim on the merit, the Examiner assumed that applicants meant "cycloalkyl" by "caged alkyl".

Claim Rejections - 35 USC § 102

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14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

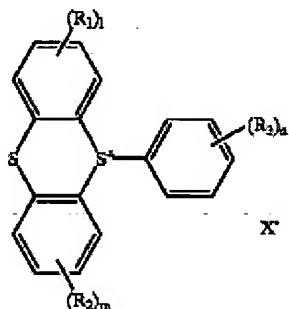
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15. Claims 1-3, 6-9, and 11-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoai et al (6,037,098).

Aoai teaches (see col.3, lines 60-67, col.4, lines 1-15) a positive photosensitive composition comprising a resin having acid-decomposable group and a photoacid generator which is represented by the following formula:



wherein R_1 - R_3 independently represents a H atom, an *alkyl group*, a *cycloalkyl group*, an alkoxy group, a hydroxyl group, a halogen atom, or a group represented by $-S-R_4$ where R_4 represents an alkyl group or an aryl group; X^- represents the anion of benzenesulfonic, naphthalenesulfonic, or anthracenesulfonic acid which has at least

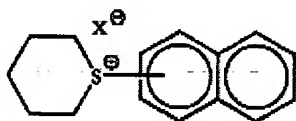
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one group selected from the group consisting of linear, branched and cyclic, alkyl and alkoxy groups having 8 or more carbon atoms, or has at least two groups selected from the group consisting of linear, branched and cyclic, alkyl and alkoxy groups having 4-7 carbon atoms, or has at least three groups selected from the group consisting of linear and branched alkyl and alkoxy groups having 1-3 carbons atoms; and l, m, and n independently represent an integer of 1-3, and when l, m, or n is 2 or 3, two of plural groups of each of R₁ to R₃ may be combined to form a ring composed of 5 to 8 atoms including a carbon ring, a heterocyclic ring, and an aromatic ring.

Therefore, Aoi teaches present inventions of claims 1-3, 6-9, and 11-16.

16. Claims 1, 2, 4-8, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Cameron et al (US 2003/0134227 A1).

Cameron teaches (see [0003] and [0009]) cyclic sulfonium and sulfoxonium photoacid generator compounds and photoresist composition that comprises such compounds. As one of the examples for the photoacid generator compound, Cameron discloses the following compound (see pg.8, structure 35):



wherein X⁻ represents R'SO₃ where R' is perfluoroalkyl having 1- 12 carbon atoms such as triflate (see [0040], [0041]).

Therefore, Cameron teaches present inventions of claims 1, 2, 4-8, and 10 (since present claim language of claim 7 does not require that each of those two aromatic rings separately coupled to the first ring, it is the Examiner's position that Cameron

teaches present invention of claim 7 since the naphthyl ring shown above clearly consists of two aromatic rings, and the naphthyl ring is coupled to the sulfur-containing ring in the structure shown above).

17. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Aoi'098 does not teach or suggest those specific anions of present claim 17.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

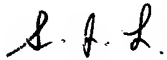
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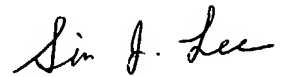
you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



S. Lee

October 1, 2004



Sin J. Lee

Patent Examiner

Technology Center 1700